Appendix E

Detailed Statistical Tables

Table E1-1. Amount of instructional and research space by institution type: 1998

Institution type and control	Number of institutions	Instructional and research space in all academic fields	Instructional and research space in S&E fields	Research space in S&E fields
		NASF in millions		
Total	660	488	286	143
Doctorate-granting	378	416	261	136
Top 100 in research expenditures	100	252	177	101
Other	278	164	84	35
Nondoctorate-granting	282	72	25	7
Public	365	346	212	106
Doctorate-granting	213	303	196	102
Nondoctorate-granting	151	43	16	5
Private	295	141	74	37
Doctorate-granting	164	113	65	34
Nondoctorate-granting	131	29	9	3

KEY: NASF = net assignable square feet.
S&E = science and engineering.

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E1-2. Amount of science and engineering (S&E) instructional and research space by institution type: 1988, 1990, 1992, 1994, 1996, and 1998

Institution type and control	Number of institutions						Total NASF in S&E fields						Research NASF in S&E fields					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
							NASF in millions											
Total	525	525	525	565	560	660	270.6	276.0	285.4	282.2	284.9	286.2	112.1	116.3	122.0	127.2	136.5	143.3
Doctorate-granting	293	293	294	319	318	378	240.7	243.9	256.3	252.7	255.9	260.8	107.4	111.2	117.4	121.8	130.7	135.9
Top 100 in research expenditures	100	100	100	100	100	100	165.7	163.9	171.9	170.6	173.4	177.3	80.6	81.7	87.5	90.9	98.3	101.3
Other	193	193	194	219	218	278	75.1	80.0	84.3	82.1	82.5	83.5	26.8	29.5	29.9	30.9	32.4	34.6
Nondoctorate-granting	232	232	231	246	242	282	29.9	32.1	29.1	29.4	29.0	25.4	4.6	5.2	4.6	5.4	5.8	7.4
Public	320	319	319	326	324	365	204.3	211.7	218.7	203.1	207.5	212.2	82.4	86.9	90.8	91.7	99.0	106.1
Doctorate-granting	191	190	192	188	188	213	183.5	188.9	198.6	182.7	187.3	195.8	79.3	83.6	88.0	88.2	95.5	101.5
Nondoctorate-granting	129	129	127	138	136	151	20.8	22.8	20.1	20.5	20.2	16.4	3.1	3.3	2.8	3.5	3.5	4.6
Private	205	206	206	239	236	295	66.3	64.4	66.7	79.0	77.4	74.0	29.7	29.4	31.2	35.6	37.5	37.2
Doctorate-granting	102	103	102	131	130	164	57.2	55.1	57.6	70.9	68.6	65.0	28.2	27.6	29.4	33.7	35.2	34.4
Nondoctorate-granting	103	103	104	108	106	131	9.1	9.3	9.1	8.9	8.8	9.0	1.5	1.8	1.8	1.9	2.3	2.8

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions; 1994 data represent 565 institutions; and all data prior to 1994 (1988, 1990, 1992), represent 525 institutions.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E1-3. Number of institutions with instructional and research space in science and engineering fields, by field and institution type: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Total						Institution type: Doctorate-granting: Top 100 in research expenditures						Institution type: Doctorate-granting: Other						Institution type: Nondoctorate-granting					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
Total	525	525	525	565	560	660	100	100	100	100	100	100	193	193	194	219	218	278	232	232	231	246	242	282
Biological sciences																								
inside medical schools	94	105	128	131	121	127	50	55	60	60	58	53	44	50	68	71	63	73	0	0	0	0	0	1
outside medical schools	475	479	485	509	517	575	96	95	94	93	94	94	151	156	161	184	186	217	229	228	231	232	237	264
Physical sciences	473	471	468	512	510	569	93	93	89	91	90	89	150	147	147	181	181	217	230	231	231	241	239	263
Psychology	472	470	435	469	479	529	91	91	86	88	88	86	155	155	155	176	176	190	227	225	194	205	215	252
Social sciences	461	447	421	450	457	507	94	95	91	93	91	90	153	155	152	165	164	198	214	198	177	191	201	218
Mathematics	455	457	458	486	493	530	93	93	88	90	88	87	148	145	153	171	178	198	215	219	217	225	227	245
Computer sciences	426	404	426	455	441	483	86	86	83	82	82	80	133	131	144	167	158	182	207	187	199	208	200	222
Earth, atmospheric, and ocean sciences	323	326	329	336	339	387	84	85	83	86	88	87	120	112	122	129	131	144	118	129	124	121	120	155
Engineering	295	299	304	314	322	339	86	86	86	88	87	87	128	129	130	129	133	153	81	84	88	98	102	98
Agricultural sciences	104	103	98	120	118	113	42	41	40	41	42	40	30	27	25	29	24	28	32	35	33	50	52	45
Medical sciences																								
outside medical schools	235	250	257	272	285	320	68	68	72	67	78	76	79	91	114	119	116	132	88	91	70	86	91	112
inside medical schools	138	144	150	125	118	140	64	64	67	66	64	63	74	80	83	59	54	73	0	0	0	0	0	4
Other sciences	111	75	82	86	95	165	47	40	38	41	38	37	40	23	30	25	34	61	24	12	14	19	23	68

NOTE: Components may not add to totals due to rounding. In the biological and medical sciences, the total number of institutions is less than the sum of the subcategories because medical schools that are part of larger universities are not counted twice in the total.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E1-4. Number of institutions with research space in science and engineering fields by field and institution type: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Total						Institution type: Doctorate-granting: Top 100 in research expenditures						Institution type: Doctorate-granting: Other						Institution type: Nondoctorate-granting					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
Total	513	517	501	551	560	660	100	100	100	100	100	100	188	187	188	219	218	278	225	229	213	232	242	282
Biological sciences																								
inside medical schools	94	105	125	131	116	127	50	55	60	60	58	53	44	50	66	71	58	73	0	0	0	0	0	1
outside medical schools	456	451	434	489	504	556	95	94	94	93	94	94	144	149	152	184	186	217	217	208	188	213	223	245
Physical sciences	446	450	432	485	490	545	92	92	89	91	90	89	142	141	141	181	181	217	212	217	202	214	219	239
Psychology	403	402	377	412	430	464	87	86	84	85	86	86	131	132	142	165	171	163	185	184	150	162	173	215
Social sciences	360	347	318	370	378	413	89	91	87	89	89	89	127	117	114	141	137	157	144	140	116	140	152	167
Mathematics	318	296	285	321	343	396	85	88	85	82	83	82	105	85	91	125	140	149	129	124	109	114	120	165
Computer sciences	332	281	284	333	340	367	78	79	80	74	77	76	95	89	90	130	132	142	159	113	114	128	131	149
Earth, atmospheric, and ocean sciences	299	294	298	291	306	348	80	82	81	81	85	85	120	112	121	118	125	141	98	89	96	92	96	122
Engineering	283	296	280	290	288	290	85	86	86	87	86	86	128	129	126	122	123	131	70	81	68	82	79	73
Agricultural sciences	96	94	95	114	112	108	42	41	40	41	42	40	30	27	25	29	24	28	24	26	30	44	45	40
Medical sciences																								
inside medical schools	134	141	146	122	118	127	63	64	66	66	64	62	71	77	80	56	54	65	0	0	0	0	0	0
outside medical schools	205	189	208	235	239	262	67	67	67	67	77	75	70	64	96	101	100	113	69	57	44	67	62	74
Other sciences	92	69	71	66	81	149	45	40	37	40	37	36	35	18	26	15	30	59	12	11	7	12	15	54

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions; 1994 data represent 565 institutions; and all data prior to 1994 (1988, 1990, 1992), represent 525 institutions. In the biological and medical sciences, the total number of institutions is less than the sum of the subcategories because medical schools that are part of larger universities are not counted twice.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E1-5. Number of institutions with science and engineering (S&E) instructional and research space by field and type of institutional control: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Institutions with S&E instructional and research space												Institutions with S&E research space											
	Public						Private						Public						Private					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
Total	320	319	319	326	324	365	205	206	206	239	236	295	316	319	311	323	324	365	197	198	190	228	236	295
Biological sciences																								
inside medical schools	68	70	79	66	61	59	26	35	49	64	60	68	68	70	77	66	56	59	26	35	49	64	60	68
outside medical schools	291	291	296	313	312	341	184	187	189	196	205	234	287	277	266	298	303	324	168	174	168	191	201	231
Physical sciences	286	285	283	310	308	334	188	186	185	202	202	235	280	280	269	301	294	312	165	170	164	184	195	233
Psychology	286	285	269	290	295	315	186	185	166	179	184	213	263	261	245	259	263	269	140	141	132	153	166	195
Social sciences	272	278	262	283	277	316	189	169	159	167	179	191	246	244	214	232	229	260	114	103	103	138	149	152
Mathematics	277	275	275	295	302	325	178	182	184	191	191	205	218	197	184	197	206	219	101	98	101	124	137	177
Computer sciences	253	247	264	278	261	300	173	158	162	177	180	183	213	164	192	199	205	215	120	116	92	134	135	152
Earth, atmospheric, and																								
ocean sciences	224	221	210	229	233	243	99	105	119	106	106	144	213	195	193	201	211	218	87	88	105	91	95	131
Engineering	219	225	220	221	232	219	76	73	84	92	90	119	207	222	204	198	202	183	76	73	77	92	86	107
Agricultural sciences	99	96	88	116	112	104	6	7	10	4	6	8	90	87	84	110	106	99	6	7	10	4	6	8
Medical sciences																								
inside medical schools	86	89	96	65	63	73	51	55	54	60	54	67	82	86	92	63	63	70	51	55	54	60	54	57
outside medical schools	196	202	195	211	225	233	38	48	62	62	59	87	170	152	156	179	193	194	36	37	51	56	47	68
Other sciences	92	63	61	51	67	117	19	13	21	35	29	48	73	57	53	45	60	108	19	13	18	21	22	41

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions; 1994 data represent 565 institutions; and all data prior to 1994 (1988, 1990, 1992), represent 525 institutions. In the biological and medical sciences, the total number of institutions is less than the sum of the subcategories because medical schools that are part of larger universities are not counted twice.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E1-6. Amount of instructional and research space in science and engineering fields, by field and institution type: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Total						Institution type: Doctorate-granting: Top 100 in research expenditures					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
	NASF in thousands											
Total	270,621	276,041	285,383	282,176	284,905	286,239	165,655	163,911	171,895	170,627	173,370	177,311
Biological sciences												
inside medical schools	12,739	14,936	18,670	16,954	16,016	17,120	7,999	9,231	11,575	11,151	11,105	10,792
outside medical schools	32,445	34,385	33,108	34,717	35,889	35,293	18,769	19,046	18,703	18,866	19,385	19,582
Physical sciences	35,634	37,542	36,722	37,648	37,822	37,787	18,807	19,264	19,075	18,530	19,139	18,793
Psychology	9,011	9,122	8,329	8,728	8,923	8,389	4,182	4,025	3,894	3,866	4,054	3,898
Social sciences	16,433	15,158	14,926	17,089	17,270	18,300	9,766	8,798	8,659	9,647	9,974	9,957
Mathematics	4,786	5,190	5,198	5,956	5,746	5,780	2,179	2,279	2,207	2,398	2,410	2,290
Computer sciences	4,938	4,625	5,707	6,206	6,290	6,072	2,245	2,430	2,818	2,795	2,839	2,839
Earth, atmospheric, and ocean sciences	12,268	12,019	12,411	12,174	12,463	12,182	7,816	7,598	6,799	7,751	7,859	7,880
Engineering	40,063	42,291	43,150	44,752	46,140	45,294	24,422	24,810	26,089	26,361	27,543	29,028
Agricultural sciences	29,994	34,003	33,161	33,971	35,056	36,485	22,276	24,706	25,699	26,402	27,282	29,458
Medical sciences												
inside medical schools	44,843	41,213	45,532	37,578	35,899	35,947	28,502	23,934	27,668	25,881	24,413	25,322
outside medical schools	21,387	21,955	24,572	22,445	23,449	22,465	14,699	15,090	15,576	13,731	14,735	15,109
Other sciences	6,078	3,602	3,846	3,958	3,941	5,124	3,993	2,701	3,132	3,247	2,633	2,362

See explanatory information and SOURCE at end of table.

Table E1-6. Amount of instructional and research space in science and engineering fields by field and institution type: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Institution type											
	Doctorate-granting											
	Other						Nondoctorate-granting					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
	NASF in thousands											
Total	75,070	80,024	84,340	82,110	82,500	83,537	29,895	32,107	29,148	29,440	29,035	25,391
Biological sciences												
inside medical schools	4,741	5,705	7,095	5,803	4,911	6,289	0	0	0	0	0	38
outside medical schools	7,850	9,318	8,842	10,349	11,202	10,453	5,827	6,022	5,562	5,501	5,302	5,259
Physical sciences	9,677	9,854	10,613	12,059	11,938	12,614	7,150	8,425	7,085	7,057	6,746	6,380
Psychology	2,528	2,759	2,726	3,009	3,016	2,845	2,302	2,339	1,708	1,852	1,853	1,645
Social sciences	3,264	3,424	3,655	4,790	4,721	5,864	3,403	2,936	2,612	2,651	2,576	2,479
Mathematics	1,490	1,662	1,753	1,921	1,864	2,134	1,116	1,249	1,238	1,637	1,473	1,356
Computer sciences	1,594	1,318	1,673	1,826	1,880	2,162	1,099	877	1,216	1,584	1,571	1,070
Earth, atmospheric, and ocean sciences	3,239	3,222	4,371	3,181	3,333	2,996	1,214	1,199	1,241	1,242	1,272	1,306
Engineering	11,353	12,177	12,505	14,481	14,731	14,507	4,288	5,303	4,556	3,909	3,866	1,759
Agricultural sciences	5,948	7,194	5,500	5,796	5,759	5,140	1,771	2,103	1,962	1,773	2,015	1,886
Medical sciences												
inside medical schools	16,341	17,279	17,864	11,697	11,486	10,602	0	0	0	0	0	23
outside medical schools	5,441	5,651	7,380	6,890	6,740	6,056	1,247	1,214	1,615	1,823	1,974	1,300
Other sciences	1,604	461	362	303	919	1,874	480	440	352	407	389	888

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988,1990, 1992) represent 525 institutions.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E1-7. Amount of research space in science and engineering fields: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Total						Institution type: Doctorate-granting, Top 100 in research expenditures					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
	NASF in thousands											
Total	112,062	116,327	122,015	127,369	136,481	143,288	80,627	81,659	87,508	90,974	98,273	101,272
Biological sciences												
inside medical schools	7,838	8,584	10,649	10,876	10,797	11,642	5,401	5,831	7,489	7,587	8,093	7,930
outside medical schools	16,072	17,569	17,072	16,982	18,662	19,425	11,403	11,715	11,316	11,487	12,409	12,867
Physical sciences	16,024	16,121	16,353	17,001	17,872	18,191	10,443	10,429	10,487	10,380	11,154	11,205
Psychology	3,085	2,978	2,984	3,178	3,404	3,360	1,771	1,581	1,665	1,717	1,829	1,841
Social sciences	3,337	3,338	3,253	3,403	3,977	4,620	2,380	2,359	2,339	2,204	2,766	2,912
Mathematics	722	790	829	937	1,005	889	397	415	437	491	555	460
Computer sciences	1,437	1,445	1,606	1,779	2,075	2,018	835	1,017	1,114	1,179	1,396	1,381
Earth, atmospheric, and ocean sciences	6,313	6,056	6,728	7,053	7,246	7,524	4,645	4,534	4,145	5,324	5,411	5,416
Engineering	15,900	17,057	18,095	20,730	21,832	22,833	11,444	12,130	13,577	14,538	15,649	16,192
Agricultural sciences	17,622	20,821	19,910	20,120	22,118	24,607	14,433	16,032	16,714	16,952	18,496	20,141
Medical sciences												
inside medical schools	14,042	14,762	16,139	16,799	17,727	18,128	10,365	9,957	11,569	12,564	13,485	13,669
outside medical schools	5,320	4,959	6,234	6,070	7,402	7,001	4,208	4,133	4,806	4,397	5,435	5,670
Other sciences	4,350	1,846	2,162	2,442	2,363	3,050	2,903	1,526	1,851	2,152	1,596	1,588

See explanatory information and SOURCE at end of table.

Table E1-7. Amount of research space in science and engineering fields: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Institution type											
	Doctorate-granting											
	Other						Nondoctorate-granting					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
	NASF in thousands											
Total	26,815	29,508	29,865	30,956	32,411	34,607	4,620	5,161	4,642	5,438	5,797	7,410
Biological sciences												
inside medical schools	2,437	2,754	3,160	3,288	2,704	3,675	0	0	0	0	0	37
outside medical schools	3,668	4,727	4,589	4,106	4,803	4,800	1,001	1,128	1,167	1,389	1,450	1,758
Physical sciences	4,236	4,232	4,767	5,347	5,358	5,200	1,344	1,459	1,099	1,275	1,361	1,786
Psychology	896	984	981	1,047	1,133	1,056	418	413	337	413	442	463
Social sciences	635	671	654	872	877	1,185	322	309	260	326	334	524
Mathematics	260	300	300	312	306	286	65	75	92	132	145	144
Computer sciences	431	315	332	361	430	442	170	113	160	238	249	195
Earth, atmospheric, and ocean sciences	1,458	1,314	2,251	1,436	1,530	1,676	210	208	332	292	305	431
Engineering	3,928	4,214	3,996	5,557	5,599	6,312	529	713	523	636	584	329
Agricultural sciences	2,821	4,247	2,737	2,692	3,031	3,155	368	542	459	475	590	1,310
Medical sciences												
inside medical schools	3,677	4,805	4,571	4,234	4,242	4,458	0	0	0	0	0	0
outside medical schools	1,004	713	1,328	1,497	1,712	1,151	109	113	100	175	255	180
Other sciences	1,364	232	198	203	685	1,210	83	87	113	86	82	252

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E1-8. Amount of instructional and research space in science and engineering (S&E) fields, by field and institution control: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Instructional and research space in S&E fields											
	Public						Private					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
Total	204,302	211,651	218,687	203,107	207,483	212,241	66,318	64,390	66,696	79,069	77,422	73,998
Biological sciences												
inside medical schools	8,433	9,388	10,306	8,352	7,756	9,144	4,307	5,547	8,364	8,601	8,259	7,976
outside medical schools	24,164	26,449	25,754	26,186	27,145	26,716	8,281	7,937	7,354	8,530	8,744	8,577
Physical sciences	24,505	26,595	25,912	25,048	25,533	26,311	11,129	10,947	10,860	12,599	12,289	11,476
Psychology	6,254	6,415	5,960	6,224	6,486	6,145	2,758	2,706	2,369	2,503	2,437	2,244
Social sciences	12,284	11,071	11,305	12,006	12,708	13,577	4,149	4,087	3,621	5,082	4,562	4,723
Mathematics	3,520	3,874	3,811	4,309	4,097	4,097	1,266	1,316	1,387	1,646	1,649	1,683
Computer sciences	3,530	3,041	3,947	3,977	4,181	4,158	1,408	1,584	1,759	2,229	2,110	1,914
Earth, atmospheric, and ocean sciences	9,624	9,393	9,981	9,307	9,555	9,317	2,644	2,626	2,430	2,866	2,908	2,865
Engineering	29,780	32,224	33,252	33,492	35,375	34,453	10,284	10,066	9,898	11,260	10,765	10,841
Agricultural sciences	29,238	32,510	31,409	30,707	31,852	33,298	756	1,493	1,753	3,264	3,204	3,186
Medical sciences												
inside medical schools	31,891	28,935	34,335	23,306	21,239	23,578	12,953	12,278	11,197	14,272	14,660	12,370
outside medical schools	16,920	18,755	19,675	17,563	18,683	17,509	4,468	3,200	4,897	4,882	4,766	4,957
Other sciences	4,162	3,000	3,038	2,627	2,873	3,938	1,917	602	808	1,332	1,068	1,185

See explanatory information and SOURCE at end of table.

Table E1-8. Amount of instructional and research space in science and engineering (S&E) fields, by field and institution control: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Research space in S&E fields											
	Public						Private					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
Total	82,384	86,881	90,815	91,723	98,958	106,093	26,678	29,447	31,200	35,645	37,522	37,195
Biological sciences												
inside medical schools	4,854	5,067	5,768	5,189	5,069	6,232	2,984	3,517	4,881	5,687	5,729	5,410
outside medical schools	11,473	13,240	13,327	12,646	13,852	14,737	4,599	4,329	3,745	4,337	4,811	4,688
Physical sciences	10,719	10,944	11,299	11,342	12,175	12,745	5,305	5,177	5,054	5,659	5,697	5,446
Psychology	2,216	2,102	2,148	2,266	2,434	2,401	869	876	836	911	970	959
Social sciences	2,794	2,684	2,601	2,806	3,284	3,816	543	655	652	597	693	804
Mathematics	505	527	554	635	629	529	217	264	276	301	376	361
Computer sciences	875	735	973	975	1,135	1,098	562	710	633	804	940	921
Earth, atmospheric, and												
ocean sciences	5,045	4,833	5,718	5,692	5,774	6,071	1,267	1,223	1,009	1,361	1,472	1,452
Engineering	11,593	12,562	13,383	15,418	16,373	17,072	4,306	4,495	4,712	5,311	5,459	5,761
Agricultural sciences	17,233	19,434	18,304	18,788	20,937	23,443	389	1,387	1,607	1,331	1,181	1,163
Medical sciences												
inside medical schools	8,368	9,022	10,434	9,738	9,766	10,255	5,675	5,739	5,705	7,061	7,960	7,873
outside medical schools	3,948	4,137	4,674	4,608	5,802	5,393	1,373	822	1,560	1,461	1,600	1,608
Other sciences	2,761	1,593	1,632	1,620	1,727	2,302	1,589	253	530	824	636	748

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E1-9. Amount of leased space in science and engineering fields, by institution type and control: 1988, 1990, 1992, 1994, 1996, and 1998

Institution type and control	Amount of leased space (NASF in thousands)						Leased space as a percentage of total research space					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
Total	3,771	3,551	4,755	4,366	5,461	6,124	3.4	3.1	3.9	9.0	4.0	4.3
Doctorate-granting	3,760	3,536	4,717	4,317	5,444	6,004	3.5	3.2	4.0	3.5	4.2	4.4
Top 100 in research expenditures	2,847	2,601	3,532	3,696	4,544	4,777	3.5	3.2	4.0	4.0	4.6	4.7
Other	913	935	1,185	621	900	1,228	3.4	3.2	4.0	2.0	2.8	3.6
Nondoctorate-granting	11	15	38	48	17	120	0.2	0.3	0.8	0.9	0.3	1.6
Public	2,315	2,145	2,869	3,169	1,625	4,198	2.8	2.5	3.2	3.0	4.3	4.0
Private	1,456	1,406	1,886	1,196	3,836	1,926	4.9	4.8	6.0	3.0	3.9	5.2

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions.

SOURCE: National Science Foundation/Divison of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E2-1. Adequacy of the amount of science and engineering research space by field: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Number of institutions[1]						Adequate					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996[3]	1998[3]
							Percentage of institutions assessments					
Biological sciences												
inside medical school	91	105	125	132	116	127	3.7	10.4	3.6	10.6	55.9	29.5
outside medical school	444	451	434	490	504	569	8.3	8.7	10.8	6.0	45.9	35.6
Physical sciences	445	450	433	489	490	556	4.7	8.7	10.6	6.4	44.9	36.4
Psychology	403	398	388	425	430	464	16.8	13.2	17.2	14.8	55.4	48.8
Social sciences	360	345	328	378	378	413	12.9	12.7	8.2	7.2	51.2	39.5
Mathematics	318	296	300	348	343	416	21.0	17.6	16.1	16.0	68.4	55.8
Computer sciences	331	280	297	347	340	395	15.1	13.5	12.9	15.5	54.6	44.4
Earth, atmospheric, and ocean sciences	297	284	314	310	306	365	11.0	11.1	10.5	7.2	53.7	38.5
Engineering	283	296	290	297	288	305	8.7	10.6	5.8	6.7	42.8	39.9
Agricultural sciences	96	94	96	123	112	108	11.0	17.0	17.5	10.5	48.1	44.9
Medical sciences												
inside medical school	134	141	146	126	118	127	0.8	7.0	4.2	10.8	34.1	32.8
outside medical school	191	189	210	243	239	280	14.3	13.0	14.2	11.7	42.6	46.6
Other, not elsewhere classified	90	69	71	63	81	149	10.4	16.9	14.0	15.0	51.8	56.5

See explanatory information and SOURCE at end of table.

Table E2-1. Adequacy of the amount of science and engineering research space by field: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Generally adequate						Inadequate[2]					
	1988	1990	1992	1994	1996[3]	1998[3]	1988	1990	1992	1994	1996[3]	1998[3]
	Percentage of institutions assessments											
Biological sciences												
inside medical school	47.3	35.5	60.5	53.5			49.0	54.1	35.9	35.5	45.5	70.5
outside medical school	45.8	48.0	51.8	53.7			45.9	43.1	37.4	40.1	53.3	64.4
Physical sciences	52.4	50.8	52.3	53.1			42.9	40.5	37.0	40.5	54.5	63.6
Psychology	51.4	54.3	50.0	53.9			31.8	32.4	32.9	31.2	43.8	51.2
Social sciences	50.2	51.0	64.4	63.4			36.9	36.2	27.4	29.3	47.6	60.5
Mathematics	53.6	47.2	58.6	55.5			25.4	35.2	25.3	28.3	30.3	44.2
Computer sciences	38.2	41.5	56.7	48.3			46.9	45.0	30.3	36.0	43.7	55.6
Earth, atmospheric, and												
ocean sciences	49.4	48.4	59.4	59.6			39.5	40.5	30.1	33.2	46.0	61.5
Engineering	40.1	40.8	49.1	53.3			51.1	48.6	45.1	40.5	57.2	60.1
Agricultural sciences	51.2	39.9	48.2	59.7			37.7	43.1	34.3	29.6	51.9	55.1
Medical sciences												
inside medical school	52.6	33.8	54.1	44.8			46.6	59.2	41.8	44.0	65.9	67.2
outside medical school	46.0	40.3	50.1	50.3			39.7	46.7	35.7	38.2	57.4	53.4
Other, not elsewhere												
classified	51.3	39.2	44.9	50.0			38.4	44.0	41.1	36.5	40.7	43.5

[1] Excludes institutions that have no research space in the field and report "not applicable or not needed."

[2] Includes the category "nonexistent but needed."

[3] 1996 and 1998 survey question included only two categories: adequate and inadequate. In previous years' surveys, there were three categories: adequate, generally adequate, and inadequate.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data are national estimates derived from samples representing the 560 largest research-performing U.S. colleges and universities; 1994 data represent 565 institutions; all previous years data (1988, 1990, 1992) represent 525 institutions.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E2-2. Adequacy of the amount of science and engineering research by field and institution type: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Institution type																	
	Doctorate-granting																	
	Top 100 in research expenditures						Other						Nondoctorate-granting					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
	Percent																	
Biological sciences																		
inside medical school	51	64	46	49	31	62	35	43	26	24	38	78	--	--	--	--	--	--
outside medical school	52	50	44	51	61	74	46	43	35	32	49	56	43	40	37	38	52	68
Physical sciences	63	57	48	51	56	71	43	45	38	46	55	55	35	31	31	32	51	69
Psychology	32	38	34	31	43	59	26	32	35	25	42	56	36	29	32	37	42	45
Social sciences	36	39	37	38	55	65	29	34	27	26	42	60	44	36	26	27	44	59
Mathematics	45	35	28	32	30	47	29	35	24	19	26	41	10	37	28	35	32	45
Computer sciences	54	55	35	43	39	63	46	39	26	30	36	47	43	42	28	39	47	61
Earth, atmospheric, and																		
ocean sciences	47	50	38	41	46	61	44	33	23	34	39	61	33	42	40	27	47	63
Engineering	61	59	52	55	57	78	46	41	37	35	57	52	49	49	53	35	48	54
Agricultural sciences	42	45	42	37	30	65	39	51	29	29	50	53	28	32	31	24	35	47
Medical sciences																		
inside medical school	62	52	53	33	40	73	57	33	35	35	69	62	--	--	--	--	--	--
outside medical school	48	56	32	43	44	68	43	35	41	41	65	48	26	49	32	30	47	51

KEY: -- = no space in this field.

NOTES: All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data are national estimates derived from samples representing the 560 largest research-performing U.S. colleges and universities; 1994 data represent 565 institutions; all previous years data (1988, 1990, 1992) represent 525 institutions. In 1994, data from 1988, 1990, and 1992 were adjusted to match the analytic procedure used to calculate 1994 figures. In 1996, survey question categories were worded slightly differently (see Table E2-1 notes).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E2-3. Adequacy of the amount of science and engineering research space by field and institution control: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Public						Private					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
	Percent											
Biological sciences												
inside medical school	56	61	37	39	50	73	31	40	34	32	41	68
outside medical school	48	54	43	46	63	70	42	25	28	30	39	57
Physical sciences	44	47	43	43	60	64	40	29	26	36	51	63
Psychology	32	31	36	33	47	53	31	34	28	29	40	49
Social sciences	37	37	32	32	48	60	38	34	23	25	47	61
Mathematics	27	43	31	32	40	48	21	21	17	22	16	40
Computer sciences	45	49	31	38	49	57	50	40	24	33	35	50
Earth, atmospheric, and												
ocean sciences	50	46	39	34	46	65	23	29	17	31	46	56
Engineering	51	51	52	47	62	67	50	10	28	25	46	49
Agricultural sciences	39	45	38	29	53	56	20	14	12	46	33	40
Medical sciences												
inside medical school	55	61	42	48	67	62	33	56	42	40	65	73
outside medical school	41	50	39	38	59	47	36	31	27	39	51	74

NOTES: 1996 data are national estimates derived from samples representing the 560 largest research-performing U.S. colleges and universities; 1994 data represent 565 institutions; all previous years data (1988, 1990, 1992) represent 525 institutions. In 1994, data from 1988, 1990, and 1992 were adjusted to match the analytic procedure used to calculate 1994 figures. In 1996, survey question categories were worded slightly differently (see Table E2-1 notes).

SOURCE: National Science Foundation/Divison of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E2-4. Condition of science and engineering (S&E) research space by institution type and control: 1988, 1990, 1992, 1994, 1996, and 1998

Institution type and control	Suitable for use in most scientifically sophisticated research						Effective for most uses, but not most scientifically sophisticated research						Requires limited repair/renovation to be used effectively					
	1988	1990	1992	1994	1996[3]	1998	1988	1990	1992	1994	1996[3]	1998[4]	1988	1990	1992	1994	1996[3]	1998[4]
	Percentage of institution s S&E research space																	
Total	23.9	25.9	26.8	26.4	37.2	39.2	36.8	35.3	34.7	32.8			23.5	23.3	22.6	23.1	43.9	37.8
Doctorate-granting	24.3	26.2	27.2	26.9	37.8	39.6	36.2	34.8	34.3	32.4			23.5	23.3	22.4	22.9	43.4	37.8
Top 100 in research expenditures	23.9	27.2	26.7	26.7	37.9	39.2	35.0	33.4	31.8	31.7			24.0	22.9	23.4	22.9	42.7	36.9
Other	25.6	23.5	28.8	27.1	37.5	40.7	39.8	38.6	41.8	34.8			21.8	24.2	19.3	23.1	45.4	40.6
Nondoctorate-granting	15.6	18.9	16.8	15.8	23.8	32.0	49.5	47.2	43.0	41.3			23.8	22.8	29.2	26.7	56.8	36.7
Public	23.1	24.5	25.5	25.2	35.2	37.7	36.2	35.7	34.8	33.2			24.4	23.9	23.1	24.1	45.8	38.7
Doctorate-granting	23.4	24.6	25.7	26.0	35.7	38.2	35.7	35.4	34.6	32.9			24.4	24.0	22.9	23.8	45.3	38.9
Nondoctorate-granting	17.5	21.1	19.1	16.0	21.7	26.4	48.0	44.3	41.8	38.3			24.0	22.7	26.8	27.2	58.9	35.8
Private	26.2	30.1	30.8	27.7	42.5	43.5	38.4	34.1	34.3	31.9			21.0	21.2	21.4	21.6	39.0	35.1
Doctorate-granting	27.0	31.1	31.8	29.4	43.5	43.7	37.6	32.9	33.6	32.0			20.9	21.1	20.7	20.5	38.0	34.8
Nondoctorate-granting	11.5	15.1	13.3	15.3	26.9	41.0	52.8	52.4	44.9	46.6			23.3	22.9	32.8	25.7	53.7	38.2

See explanatory information and SOURCE at end of table.

Table E2-4. Condition of science and engineering (S&E) research space by institution type and control: 1988, 1990, 1992, 1994, 1996, and 1998

Institution type and control	Requires major repair/renovation to be used effectively[1]						Requires replacement[2]			
	1988	1990	1992	1994	1996[3]	1998[4]	1992	1994	1996[3]	1998[4]
	Percentage of institution s S&E research space									
Total	15.8	15.5	12.8	12.9	18.5	18.1	3.1	4.1		4.9
Doctorate-granting	16.2	15.7	12.9	12.9	18.5	17.7	3.2	4.2		4.9
Top 100 in research expenditures	17.1	16.5	14.2	13.1	18.9	18.7	3.9	4.8		5.2
Other	12.8	13.6	9.2	12.2	17.1	14.6	1.0	2.5		4.0
Nondoctorate-granting	11.1	11.1	9.8	13.9	18.4	25.6	1.2	2.2		5.0
Public	16.4	15.9	13.1	13.0	18.5	18.7	3.5	4.7		4.9
Doctorate-granting	16.6	16.0	13.2	12.5	18.5	18.0	3.6	4.7		4.9
Nondoctorate-granting	10.4	11.8	11.2	16.0	19.4	32.8	1.1	2.3		3.9
Private	14.4	14.5	11.7	12.7	18.4	16.5	1.8	2.7		5.0
Doctorate-granting	14.5	14.8	12.0	11.7	18.5	16.7	1.9	2.6		4.8
Nondoctorate-granting	12.4	9.7	7.5	10.1	17.1	13.9	1.4	1.9		6.9

[1] The data for 1988 and 1990 in this category include space requiring replacement.

[2] This category was first used in the 1992 survey.

[3] 1996 survey response categories changed to: suitable for the most scientifically competitive research; effective for most levels of research, but may need limited repair/renovation; and requires major renovation or replacement to be used effectively.

[4] 1998 survey response categories changed to: suitable for the most scientifically competitive research; effective for most levels of research, but may need limited repair/renovation; requires major renovation to be used effectively; and requires replacement.

NOTES: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data are national estimates derived from samples representing the 560 largest research-performing U.S. colleges and universities; 1994 data represent 565 institutions; all previous years data (1988, 1990, 1992) represent 525 institutions. In 1994, data from 1988, 1990, and 1992 were adjusted to match the analytic procedure used to calculate 1994 figures.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E2-5. Condition of science and engineering research space by field: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Requires major repair/renovation to be used effectively						Requires replacement[2]			
	1988[1]	1990[1]	1992	1994	1996[3]	1998[4]	1992	1994	1996[3]	1998[4]
	Percent									
Biological sciences										
outside medical school	15.5	14.0	12.5	14.2	17.8	19.6	2.8	5.0		5.3
inside medical school	13.4	13.2	12.5	13.3	14.7	14.1	1.4	1.8		2.0
Physical sciences	17.5	16.5	12.5	15.3	18.8	16.5	2.1	2.3		4.9
Psychology	12.3	11.6	9.0	11.1	12.3	16.3	1.0	2.0		2.2
Social sciences	10.8	9.8	12.2	9.0	13.1	14.5	1.2	1.9		1.5
Mathematics	5.8	7.6	3.0	4.1	9.9	11.5	1.8	1.3		2.9
Computer sciences	16.2	8.1	6.0	4.7	7.5	10.8	1.0	1.2		5.0
Earth, atmospheric, and ocean sciences	14.7	14.8	9.5	13.0	19.1	17.5	2.4	6.0		8.0
Engineering	13.9	14.5	10.8	12.1	17.9	14.9	2.4	2.8		3.9
Agricultural sciences	20.0	22.0	18.5	13.6	23.5	23.8	7.7	8.8		6.5
Medical sciences										
outside medical school	14.6	17.0	13.8	11.8	20.6	20.9	3.4	4.7		4.4
inside medical school	16.6	13.4	12.6	13.5	19.7	19.9	2.0	3.3		2.0

[1] The data for 1988 and 1990 in this category include space requiring replacement.

[2] This category was first used in the 1992 survey.

[3] 1996 survey response categories changed to: suitable for the most scientifically competitive research; effective for most levels of research, but may need limited repair/renovation; and requires major renovation or replacement to be used effectively.

[4] 1998 survey response categories changed to: suitable for the most scientifically competitive research; effective for most levels of research, but may need limited repair/renovation; requires major renovation to be used effectively; and requires replacement.

NOTES: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data are national estimates derived from samples representing the 560 largest research-performing U.S. colleges and universities; 1994 data represent 565 institutions; all previous years data (1988, 1990, 1992) represent 525 institutions. In 1994, data from 1988, 1990, and 1992 were adjusted to match the analytic procedure used to calculate 1994 figures.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E3-1. Number of research-performing institutions starting projects to construct science and engineering research facilities by institution type and control: 1986 99

Institution type and control	1986 87	1988 89	1990 91	1992 93	1994 95	1996 97	(scheduled) 1998 99
Total	192	227	191	184	164	197	202
Doctorate-granting	135	154	165	144	132	143	143
Top 100 in research expenditures	72	71	81	81	75	68	64
Other	64	83	84	63	57	75	79
Nondoctorate-granting	57	73	27	39	32	54	59
Public	140	158	136	133	115	134	139
Doctorate-granting	103	106	116	103	97	101	107
Nondoctorate-granting	37	52	20	30	19	34	32
Private	52	68	55	51	49	63	63
Doctorate-granting	32	48	49	42	35	42	36
Nondoctorate-granting	19	21	7	10	14	21	27

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E3-2. Trends in the amounts of science and engineering research space to be constructed and the estimated cost of construction by institution type and control: 1986 99

Institution type and control	1986 87		1988 89		1990 91		1992 93		1994 95		1996 97		1998 99 (scheduled)	
	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost
	NASF in thousands; cost in millions of current dollars													
Total	9,922	2,051	10,647	2,464	11,433	2,976	10,992	2,811	9,521	2,768	11,101	3,110	14,556	3,949
Doctorate-granting	8,908	1,888	9,840	2,315	11,022	2,847	10,474	2,720	8,818	2,437	9,914	2,843	12,825	3,494
Top 100 in research expenditures	7,261	1,599	6,073	1,558	6,972	2,022	6,787	2,029	6,426	2,007	6,944	2,054	8,708	2,537
Other	1,647	288	3,767	757	4,050	826	3,687	691	2,391	430	2,970	789	4,116	957
Nondoctorate-granting	1,014	163	807	150	411	128	518	92	703	331	1,187	267	1,731	455
Public	7,344	1,355	8,115	1,727	8,268	2,020	8,189	2,016	6,838	1,872	7,607	1,989	11,507	2,844
Doctorate-granting	6,516	1,220	7,460	1,626	7,942	1,906	7,695	1,929	6,252	1,578	6,712	1,813	10,265	2,538
Nondoctorate-granting	828	134	656	101	325	114	494	86	586	294	895	176	1,242	306
Private	2,578	696	2,532	738	3,165	956	2,802	796	2,683	895	3,494	1,122	3,049	1,105
Doctorate-granting	2,392	667	2,381	689	3,079	941	2,778	789	2,566	859	3,202	1,031	2,560	955
Nondoctorate-granting	186	29	152	48	86	15	24	6	117	36	292	91	489	149

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1986, 1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 3 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E3-3. Number of institutions starting projects to construct science and engineering research facilities by field: 1986 99

Field	1986 87	1988 89	1990 91	1992 93	1994 95	1996 97	(scheduled) 1998 99
Total	192	227	191	184	164	197	202
Biological sciences							
inside medical schools	20	26	41	26	12	18	29
outside medical schools	43	87	57	49	42	73	67
Physical sciences	41	67	50	44	49	59	75
Psychology	21	11	29	8	8	19	25
Social sciences	19	13	--*	10	15	19	17
Mathematics	3	5	13	5	4	2	19
Computer sciences	28	21	20	13	7	15	12
Earth, atmospheric, and							
ocean sciences	28	17	42	26	15	40	31
Engineering	79	252	48	49	44	33	42
Agricultural sciences	36	32	28	32	25	30	21
Medical sciences							
inside medical schools	42	35	62	41	31	42	26
outside medical schools	18	14	33	25	14	25	30
Other sciences	14	13	22	13	17	15	15

* Psychology and the social sciences were not differentiated in the questionnaire item for the 1990 91 period.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E3-4. Trends in the amount of science and engineering research space to be constructed in projects costing over $100,000 and the estimated cost of construction by field: 1986 99

Field	1986 87		1988 89		1990 91		1992 93		1994 95		1996 97		1998 99 (scheduled)	
	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost
	NASF in thousands; cost in millions of current dollars													
Total	9,922	2,051	10,647	2,464	11,433	2,976	10,992	2,812	9,521	2,768	11,101	3,110	14,556	3,949
Biological sciences														
inside medical schools	433	139	712	181	1,426	381	1,020	341	579	226	701	178	2,442	597
outside medical schools	1,275	324	1,549	396	1,374	451	1,169	292	1,028	388	1,216	404	2,694	812
Physical sciences	799	182	2,000	401	1,609	430	1,257	337	1,551	426	1,229	381	1,516	525
Psychology	132	23	115	25	164	36	78	16	145	42	208	77	378	91
Social sciences	202	38	329	48	--*	--*	221	44	380	112	233	75	261	81
Mathematics	9	2	25	8	46	12	44	10	8	2	16	9	128	19
Computer sciences	237	61	286	65	293	40	172	47	143	46	92	21	94	27
Earth, atmospheric, and														
ocean sciences	380	57	324	82	529	170	502	123	282	33	534	172	796	235
Engineering	2,390	430	1,490	388	1,697	395	1,065	286	2,174	575	1,484	332	1,825	528
Agricultural sciences	1,513	150	1,146	152	955	175	1,218	210	808	150	1,539	273	1,727	169
Medical sciences														
inside medical schools	1,335	302	1,948	587	2,288	655	3,154	839	1,694	525	2,652	784	1,898	613
outside medical schools	613	203	306	61	673	151	669	160	388	122	733	259	618	206
Other sciences	603	139	418	70	380	79	420	106	340	122	463	145	179	46

* Psychology and social sciences were not differentiated in the questionnaire item for the 1990 91 period.

KEY: NASF = net assignable square feet

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 3 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E4-1. Number of institutions starting projects to repair/renovate science and engineering research facilities by institution type and control: 1986 99

Institution type and control	1986 87	1988 89	1990 91	1992 93	1994 95	1996 97	(scheduled) 1998 99
Total	288	248	244	252	252	343	304
Doctorate-granting	224	204	212	196	194	252	236
Top 100 in research expenditures	96	85	91	90	88	92	85
Other	128	119	121	106	106	160	151
Nondoctorate-granting	64	44	32	56	59	91	68
Public	210	164	155	137	149	203	200
Doctorate-granting	163	133	137	112	116	158	160
Nondoctorate-granting	47	31	17	25	33	45	40
Private	78	84	89	115	103	140	105
Doctorate-granting	61	71	75	84	77	94	77
Nondoctorate-granting	17	14	15	31	25	46	28

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E4-2. Trends in the amount of science and engineering research space and the estimated cost of repair/renovation by institution type and control: 1986 99

Institution type and control	1986 87		1988 89		1990 91		1992 93		1994 95		1996 97		1998 99 (scheduled)	
	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost
	NASF in thousands; cost in millions of current dollars													
Total	13,431	838	11,449	1,010	8,655	826	9,133	837	13,122	1,058	15,059	1,325	14,707	1,580
Doctorate-granting	12,841	793	10,993	979	8,352	794	8,811	803	12,364	981	13,414	1,142	13,404	1,399
Top 100 in research expenditures	9,124	596	7,781	483	5,622	633	6,028	623	8,758	755	9,776	857	8,471	1,023
Other	3,717	197	3,212	496	2,730	161	2,783	180	3,607	226	3,638	285	4,934	376
Nondoctorate-granting	590	45	456	30	303	32	323	34	758	77	1,645	182	1,303	181
Public	8,745	436	8,223	699	5,460	449	6,011	522	6,839	496	9,379	670	10,353	929
Doctorate-granting	8,307	399	7,890	674	5,295	431	5,877	508	6,242	450	8,381	581	9,522	828
Nondoctorate-granting	438	37	333	25	165	18	134	14	597	46	999	89	831	102
Private	4,685	402	3,226	311	3,195	376	3,123	315	6,283	562	5,679	655	4,354	650
Doctorate-granting	4,534	393	3,102	305	3,057	363	2,934	295	6,122	531	5,033	562	3,882	571
Nondoctorate-granting	152	9	123	6	137	14	189	20	161	31	646	93	471	79

KEY: NASF = net assignable square feet

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 3 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E4-3. Number of institutions starting projects to repair/renovate science and engineering research facilities, by field: 1986 99

Field	1986 87	1988 89	1990 91	1992 93	1994 95	1996 97	(scheduled) 1998 99
Total	288	248	244	252	252	343	304
Biological sciences							
outside medical schools	112	121	96	104	113	163	118
inside medical schools	44	44	59	53	57	69	43
Physical sciences	98	104	98	104	118	168	119
Psychology	35	20	44	18	22	36	50
Social sciences	29	17	--*	20	33	51	60
Mathematics	25	26	12	6	14	14	14
Computer sciences	49	16	29	20	25	24	46
Earth, atmospheric, and							
ocean sciences	40	26	37	38	33	43	44
Engineering	118	106	71	85	86	100	81
Agricultural sciences	32	24	25	21	31	27	21
Medical sciences							
outside medical schools	28	32	41	36	39	73	66
inside medical schools	75	70	92	74	66	53	44
Other sciences	17	17	23	8	8	28	18

* Psychology and the social sciences were not differentiated in the questionnaire for the 1990 91 period.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of $100,000 or prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E4-4. Trends in the amount of science and engineering research space to be repaired or renovated in projects costing over $100,000 and the estimated cost of repair/renovation by field: 1986 99

Field	1986 87		1988 89		1990 91		1992 93		1994 95		1996 97		(scheduled) 1998 99	
	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost
	NASF in thousands; cost in millions of current dollars													
Total	13,431	838	11,449	1,010	8,606	826	9,134	837	13,122	1,058	15,059	1,325	14,707	1,580
Biological sciences														
inside medical schools	1,056	78	1,259	76	1,301	123	864	116	752	101	1,527	164	817	93
outside medical schools	2,555	146	2,203	126	1,055	135	1,304	108	1,610	127	2,481	200	3,374	280
Physical sciences	1,746	105	1,928	165	1,680	151	1,725	134	2,474	192	2,432	244	2,064	241
Psychology	256	14	88	11	254	31	141	10	182	28	468	65	475	33
Social sciences	181	36	119	8	--*	--*	236	10	296	40	652	40	728	124
Mathematics	37	4	136	11	39	6	11	2	67	6	81	5	246	51
Computer sciences	193	17	144	9	164	21	54	4	124	8	160	12	629	95
Earth, atmospheric, and														
ocean sciences	362	21	930	18	450	16	418	31	521	35	430	52	581	54
Engineering	2,716	141	1,630	361	1,159	82	1,932	139	1,803	150	2,691	208	2,163	198
Agricultural sciences	628	20	530	23	391	35	335	14	1,245	72	836	50	625	26
Medical sciences														
inside medical schools	2,499	174	1,598	161	1,443	166	1,678	234	3,129	226	2,176	196	1,943	282
outside medical schools	737	52	705	24	627	53	284	28	757	59	726	76	958	77
Other sciences	465	30	180	17	42	6	152	7	162	12	400	11	106	24

* Psychology and social sciences were not differentiated in the questionnaire item for the 1990 91 period.

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1986, 1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 3 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E4-5. Number of research institutions and estimated total project completion cost of all repair/renovation projects between $5,000 and $100,000 for science and engineering research facilities by institution type and control: 1996 and 1997

Institution type and control	Number of institutions	Estimated total completion cost
		In millions of current dollars
Total	384	207.9
Doctorate-granting	272	194.8
Top 100 in research expenditures	86	124.8
Other	186	70.0
Nondoctorate-granting	112	13.1
Public	224	132.4
Doctorate-granting	164	123.4
Nondoctorate-granting	60	9.0
Private	160	75.6
Doctorate-granting	108	71.4
Nondoctorate-granting	52	4.1

NOTE: Components may not add to totals due to rounding. Project costs reflect research component only.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E5-1. Amount of funds for science and engineering research facility construction projects, by institution type, and source of funds: 1986 97

Year of project start and type of institution	All sources	Governments		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
		Federal	State/ local					
	In millions of current dollars							
1986 or 1987:								
Total	2,050.6	145.4	779.1	487.5	289.8	313.1	3.1	31.9
Doctorate-granting	1,887.7	129.9	690.4	462.5	289.2	280.1	3.1	31.9
Nondoctorate-granting	162.9	15.5	88.7	25.1	0.6	33.1	0.0	0.0
1988 or 1989:								
Total	2,464.5	352.0	890.7	459.2	343.8	320.2	95.9	0.8
Doctorate-granting	2,315.0	339.0	807.3	411.7	338.3	320.2	95.9	0.8
Nondoctorate-granting	149.5	13.0	83.4	47.5	5.6	0.0	0.0	0.0
1990 or 1991:								
Total	2,975.6	476.3	956.6	352.6	394.1	727.5	35.4	33.1
Doctorate-granting	2,847.3	465.5	947.9	348.0	390.3	627.0	35.4	33.1
Nondoctorate-granting	128.4	10.8	8.7	4.6	3.8	100.5	0.0	0.0
1992 or 1993:								
Total	2,810.8	459.3	968.0	301.0	374.3	620.3	39.0	50.0
Doctorate-granting	2,720.0	452.0	893.0	297.0	374.0	616.0	39.0	48.0
Nondoctorate-granting	91.8	7.3	75.0	4.0	0.3	4.3	0.0	2.0
1994 or 1995:								
Total	2,767.6	206.5	1,180.8	360.0	442.0	426.1	145.7	6.5
Doctorate-granting	2,436.9	201.2	890.4	344.0	437.5	411.6	145.7	6.5
Nondoctorate-granting	330.6	5.2	290.5	16.0	4.4	14.5	0.0	0.0
1996 or 1997								
Total	3,110.3	270.9	966.6	596.6	593.1	553.0	106.6	23.5
Doctorate-granting	2,843.2	268.3	880.6	517.8	592.9	488.1	73.2	22.3
Nondoctorate-granting	267.1	2.5	86.0	78.8	0.2	65.0	33.4	1.2

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of more than $100,000 for research-related space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 5 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E5-2. Trends in the sources of funding for the construction of research facilities at public institutions: 1986 97

Year of project start and type of institution	All sources	Governments		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
		Federal	State/ local					
	In millions of current dollars							
1986 or 1987:								
Total	1,354.8	40.3	754.5	259.1	109.2	189.5	2.4	0.2
Doctorate-granting	1,220.4	31.4	665.9	238.6	109.2	173.1	2.4	0.2
Nondoctorate-granting	134.4	8.9	88.5	20.6	0.0	16.4	0.0	0.0
1988 or 1989:								
Total	1,727.0	274.3	838.4	192.9	256.3	154.5	8.1	0.6
Doctorate-granting	1,625.6	268.3	755.0	184.8	252.4	154.6	8.1	0.6
Nondoctorate-granting	101.4	6.0	83.4	8.1	3.9	0.0	0.0	0.0
1990 or 1991:								
Total	2,020.0	388.1	809.4	139.1	270.2	398.6	7.8	6.9
Doctorate-granting	1,906.4	382.3	800.7	139.1	270.2	299.4	7.8	6.9
Nondoctorate-granting	113.7	5.8	8.7	0.0	0.0	99.2	0.0	0.0
1992 or 1993:								
Total	2,016.4	325.8	929.8	152.5	198.3	390.5	16.2	3.3
Doctorate-granting	1,929.9	320.1	854.4	152.5	198.1	386.9	16.2	1.7
Nondoctorate-granting	86.4	5.7	75.4	0.0	0.2	3.6	0.0	1.6
1994 or 1995:								
Total	1,872.3	115.4	1,164.6	123.9	142.4	306.1	13.5	6.5
Doctorate-granting	1,578.1	112.5	874.0	123.9	141.6	306.1	13.5	6.5
Nondoctorate-granting	294.2	3.0	290.5	0.0	0.8	0.0	0.0	0.0
1996 or 1997								
Total	1,988.7	201.0	940.2	267.3	249.3	259.7	54.4	16.9
Doctorate-granting	1,812.7	198.4	863.2	262.0	249.3	203.1	21.0	15.7
Nondoctorate-granting	176.0	2.5	77.0	5.3	0.0	56.6	33.4	1.2

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of more than $100,000 for research-related space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 5 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E5-3. Trends in the sources of funding for the construction of research facilities at private institutions: 1986 97

Year of project start and type of institution	All sources	Governments		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
		Federal	State/ local					
	In millions of current dollars							
1986 or 1987:								
Total	695.8	105.1	24.6	228.4	180.6	123.6	0.7	31.7
Doctorate-granting	667.3	98.5	24.5	223.9	180.0	107.0	0.7	31.7
Nondoctorate-granting	28.5	6.6	0.2	4.5	0.6	16.7	0.0	0.0
1988 or 1989:								
Total	737.5	77.7	52.3	266.3	87.5	165.7	87.8	0.2
Doctorate-granting	689.4	70.7	52.3	226.9	85.9	165.6	87.8	0.2
Nondoctorate-granting	48.1	7.0	0.0	39.4	1.7	0.0	0.0	0.0
1990 or 1991:								
Total	955.6	88.2	147.2	213.5	123.9	328.9	27.6	26.2
Doctorate-granting	940.9	83.2	147.2	208.9	120.1	327.6	27.6	26.2
Nondoctorate-granting	14.7	5.0	0.0	4.6	3.8	1.3	0.0	0.0
1992 or 1993:								
Total	795.5	133.5	38.8	148.5	176.1	229.6	22.7	46.4
Doctorate-granting	789.7	132.2	38.8	144.6	175.8	229.3	22.7	46.4
Nondoctorate-granting	5.8	1.3	0.0	3.9	0.3	0.3	0.0	0.0
1994 or 1995:								
Total	895.2	91.0	16.3	236.1	299.5	120.0	132.2	0.0
Doctorate-granting	858.8	88.8	16.3	220.1	295.9	105.5	132.2	0.0
Nondoctorate-granting	36.3	2.2	0.0	16.0	3.6	14.5	0.0	0.0
1996 or 1997								
Total	1,121.6	69.9	26.4	329.4	343.8	293.4	52.2	6.6
Doctorate-granting	1,030.5	69.9	17.4	255.9	343.6	285.0	52.2	6.6
Nondoctorate-granting	91.1	0.0	9.0	73.5	0.2	8.4	0.0	0.0

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of more than $100,000 for research-related space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 5 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E5-4. Trends in the sources of funding for the repair/renovation of science and engineering research facilities: 1986 97

Year of project start and type of institution	All sources	Governments		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
		Federal	State/ local					
	In millions of current dollars							
1986 or 1987:								
Total	837.9	27.3	233.1	101.0	328.0	137.6	3.8	7.4
Doctorate-granting	792.7	23.5	201.7	99.3	325.2	132.2	3.8	7.4
Nondoctorate-granting	45.2	3.7	31.4	1.6	3.0	5.4	0.0	0.0
1988 or 1989:								
Total	1,009.5	61.1	233.8	52.1	570.8	69.9	15.9	5.2
Doctorate-granting	979.2	55.9	226.6	42.1	563.6	69.8	15.9	5.2
Nondoctorate-granting	30.3	5.1	7.1	10.0	7.2	0.0	0.0	0.0
1990 or 1991:								
Total	825.7	49.0	243.0	100.6	355.4	66.4	8.0	3.2
Doctorate-granting	794.1	48.3	227.3	97.5	346.7	63.2	8.0	3.2
Nondoctorate-granting	31.6	0.7	15.8	3.2	8.7	3.3	0.0	0.0
1992 or 1993:								
Total	835.4	56.2	252.4	73.0	332.0	81.0	27.0	16.2
Doctorate-granting	803.0	47.0	244.0	66.0	325.0	79.0	27.0	16.2
Nondoctorate-granting	32.4	9.2	8.4	7.0	7.0	2.0	0.0	0.0
1994 or 1995:								
Total	1,058.1	110.7	265.5	110.7	432.7	50.4	78.6	9.3
Doctorate-granting	981.3	101.9	233.0	93.7	423.2	43.8	76.3	9.3
Nondoctorate-granting	76.8	8.8	32.6	17.0	9.5	6.6	2.4	0.0
1996 or 1997								
Total	1,324.5	120.8	338.1	140.6	578.6	84.6	35.7	26.1
Doctorate-granting	1,142.2	96.1	273.2	86.8	568.0	56.3	35.7	26.1
Nondoctorate-granting	182.3	24.7	64.9	53.8	10.6	28.3	0.0	0.0

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of more than $100,000 for research-related space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 5 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E5-5. Trends in the sources of funding for the repair/renovation of research facilities at public institutions: 1986 97

Year of project start and type of institution	All sources	Governments		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
		Federal	State/ local					
	In millions of current dollars							
1986 or 1987:								
Total	435.9	13.2	226.6	15.0	155.1	25.5	0.3	0.2
Doctorate-granting	399.3	10.9	195.1	14.3	153.4	25.0	0.3	0.2
Nondoctorate-granting	36.6	2.2	31.4	0.6	1.8	0.5	0.0	0.0
1988 or 1989:								
Total	698.5	31.4	229.3	22.0	403.5	6.6	4.9	0.0
Doctorate-granting	673.9	26.5	222.1	13.9	399.8	6.5	4.9	0.0
Nondoctorate-granting	24.6	4.9	7.1	8.1	3.6	0.0	0.0	0.0
1990 or 1991:								
Total	449.3	24.6	233.5	43.8	134.6	12.1	0.0	0.6
Doctorate-granting	431.3	23.9	217.8	43.8	133.1	12.1	0.0	0.6
Nondoctorate-granting	18.0	0.7	15.8	0.0	1.5	0.0	0.0	0.0
1992 or 1993:								
Total	520.4	34.3	237.1	24.9	154.4	55.9	1.6	11.9
Doctorate-granting	507.9	31.1	228.5	24.9	153.8	55.9	1.6	11.9
Nondoctorate-granting	12.4	3.2	8.6	0.0	0.6	0.0	0.0	0.0
1994 or 1995:								
Total	495.8	38.9	254.4	16.0	160.8	18.3	0.9	6.5
Doctorate-granting	449.9	31.8	222.3	15.7	154.4	18.3	0.9	6.5
Nondoctorate-granting	45.9	7.1	32.1	0.2	6.5	0.0	0.0	0.0
1996 or 1997								
Total	669.6	72.4	328.3	38.3	179.6	25.1	0.3	25.7
Doctorate-granting	580.5	58.2	263.4	36.8	175.6	20.6	0.3	25.7
Nondoctorate-granting	89.1	14.2	64.9	1.5	4.0	4.6	0.0	0.0

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of more than $100,000 for research-related space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 5 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E5-6. Trends in the sources of funding for the repair/renovation of science and engineering research facilities at private institutions: 1986 97

Year of project start and type of institution	All sources	Governments		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
		Federal	State/ local					
	In millions of current dollars							
1986 or 1987:								
Total	402.0	14.1	6.5	86.0	172.9	112.1	3.5	7.2
Doctorate-granting	393.4	12.6	6.6	85.0	171.8	107.2	3.5	7.2
Nondoctorate-granting	8.6	1.5	0.0	1.0	1.2	4.9	0.0	0.0
1988 or 1989:								
Total	311.0	29.7	4.5	30.1	167.3	63.3	11.0	5.2
Doctorate-granting	305.3	29.4	4.5	28.2	163.8	63.3	11.0	5.2
Nondoctorate-granting	5.7	0.2	0.0	1.9	3.6	0.0	0.0	0.0
1990 or 1991:								
Total	376.4	24.4	9.5	56.8	220.8	54.3	8.0	2.6
Doctorate-granting	362.8	24.4	9.5	53.7	213.6	51.1	8.0	2.6
Nondoctorate-granting	13.6	0.0	0.0	3.2	7.2	3.3	0.0	0.0
1992 or 1993:								
Total	314.6	21.8	15.0	47.5	176.3	24.5	25.2	4.3
Doctorate-granting	294.7	16.0	15.0	40.7	170.5	22.9	25.2	4.2
Nondoctorate-granting	19.9	5.8	0.0	6.8	5.8	1.6	0.0	0.1
1994 or 1995:								
Total	562.3	71.8	11.2	94.8	271.9	32.2	77.7	2.8
Doctorate-granting	531.4	70.1	10.7	78.0	268.8	25.6	75.4	2.8
Nondoctorate-granting	30.8	1.6	0.5	16.8	3.0	6.6	2.4	0.0
1996 or 1997								
Total	654.9	48.4	9.8	102.4	399.0	59.5	35.4	0.4
Doctorate-granting	561.7	37.9	9.8	50.1	392.4	35.7	35.4	0.4
Nondoctorate-granting	93.2	10.5	0.0	52.3	6.6	23.7	0.0	0.0

NOTE: Components may not add to totals due to rounding. All 1998 data are national estimates derived from samples representing the 660 largest research-performing U.S. colleges and universities; 1996 data represent 560 institutions, 1994 data represent 565 institutions, and all data prior to 1994 (1988, 1990, 1992) represent 525 institutions. Findings are limited to projects with estimated total costs at completion of more than $100,000 for research-related space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 5 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E6-1. Percentage of institutions with deferred capital projects to construct or repair/ renovate science and engineering (S&E) research facilities by institution type, project type, and whether the project was included in institutional plans: 1998

Institution type	Included in institutional plans			Not included in institutional plans		
	To construct or repair/ renovate	To construct new S&E research facilities	To repair/ renovate existing S&E research facilities	To construct or repair/ renovate	To construct new S&E research facilities	To repair/ renovate existing S&E research facilities
Total	48	31	34	24	10	21
Doctorate-granting	57	37	41	30	11	28
Top 100 in research expenditures	68	51	61	28	17	26
Other	53	33	34	31	8	28
Nondoctorate-granting	35	22	24	16	9	12
Public	56	39	41	24	13	19
Doctorate-granting	67	48	50	29	14	26
Nondoctorate-granting	41	26	29	17	12	9
Private	37	21	25	25	6	23
Doctorate-granting	44	24	30	32	6	30
Nondoctorate-granting	29	18	19	15	6	15

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E6-2. Estimated cost of deferred capital projects to construct or repair/renovate science and engineering (S&E) research facilities by institution type, project type and whether the project was included in institutional plans: 1998

Institution type	Included in institutional plans		Not included in institutional plans		Total
	To construct new S&E research facilities	To repair/ renovate existing S&E research facilities	To construct new S&E research facilities	To repair/ renovate existing S&E research facilities	
	In millions of current dollars				
Total	5,856.7	2,834.2	1,142.2	1,547.8	11,380.9
Doctorate-granting	5,404.6	2,545.9	1,118.1	1,486.6	10,555.2
Top 100 in research expenditures	3,685.2	1,713.6	730.6	1,024.8	7,154.2
Other	1,719.3	832.3	387.5	461.8	3,400.9
Nondoctorate-granting	452.1	288.3	24.0	61.1	825.5
Public	5,049.4	2,238.0	940.0	1,107.0	9,334.4
Doctorate-granting	4,729.5	2,082.0	921.3	1,089.2	8,822.0
Nondoctorate-granting	319.9	156.0	18.7	17.8	512.4
Private	807.3	596.1	202.2	440.8	2,046.4
Doctorate-granting	675.1	463.8	196.8	397.5	1,733.2
Nondoctorate-granting	132.2	132.3	5.3	43.3	313.1

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E6-3. Number of institutions with deferred capital projects to construct or repair/ renovate science and engineering (S&E) research facilities by field, project type and whether the project was included in institutional plans: 1998

Field	Included in institutional plans		Not included in institutional plans	
	To construct new S&E research facilities	To repair/ renovate existing S&E research facilities	To construct new S&E research facilities	To repair/ renovate existing S&E research facilities
Biological sciences				
inside medical schools	10	23	5	17
outside medical schools	81	128	25	60
Physical sciences	103	122	26	58
Psychology	29	62	8	33
Social sciences	25	65	11	45
Mathematics	22	53	10	38
Computer sciences	29	48	12	44
Earth, atmospheric, and ocean sciences	30	60	15	24
Engineering	58	90	11	43
Agricultural sciences	28	39	15	24
Medical sciences				
inside medical schools	18	32	8	13
outside medical schools	25	57	14	25
Other sciences	13	19	5	17

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E6-4. The cost of deferred capital projects to construct or repair/renovate science and engineering (S&E) research facilities by field and whether the project was included in institutional plans: 1998

Field	Included in institutional plans		Not included in institutional plans		Total
	To construct new S&E research facilities	To repair/ renovate existing S&E research facilities	To construct new S&E research facilities	To repair/ renovate existing S&E research facilities	
Total	5,856.7	2,834.2	1,142.2	1,547.8	11,380.8
Biological sciences					
inside medical schools	266.6	159.8	40.2	73.9	540.4
outside medical schools	967.3	504.7	272.6	348.0	2,092.5
Physical sciences	1,339.4	596.5	212.2	304.7	2,452.7
Psychology	107.4	71.4	30.3	33.4	242.5
Social sciences	136.0	110.0	44.1	66.9	357.0
Mathematics	82.7	75.0	5.0	19.4	182.2
Computer sciences	198.2	25.5	38.2	34.7	296.6
Earth, atmospheric, and					
ocean sciences	326.8	105.6	70.6	41.8	544.9
Engineering	877.7	556.2	166.3	144.2	1,744.4
Agricultural sciences	422.0	164.6	64.3	117.0	767.8
Medical sciences					
inside medical schools	688.9	273.9	108.6	184.2	1,255.6
outside medical schools	332.8	129.0	71.3	173.5	706.7
Other sciences	101.8	62.0	18.4	6.2	188.4

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E7-1. Total number of Historically Black Colleges and Universities (HBCUs) by type and control: 1998

Institution type and control	Original group[1]	Expanded group[2]
Number of research-performing HBCUs	29	57
Public	22	36
Doctorate-granting	10	10
Nondoctorate-granting	11	25
Private	7	21
Doctorate-granting	5	8
Nondoctorate-granting	2	14

[1] The original group consists of the 29 HBCUs also surveyed in 1986, 1988, 1990, 1992, 1994, and 1996.

[2] The expanded group consists of the 57 research-performing HBCUs surveyed in 1998.

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E7-2. Amount of instructional and research space in Historically Black Colleges and Universities (HBCUs): 1998

Type of space	Original group[1]	Expanded group[2]
	NASF in millions	
Total instructional and research space all fields	14	18
Instructional and research space S&E fields	7	9
Research space S&E fields	2	2

[1] The original group consists of the 29 HBCUs also surveyed in 1986, 1988, 1990, 1992, 1994, and 1996.

[2] The expanded group consists of the 57 research-performing HBCUs surveyed in 1998.

KEY: NASF = net assignable square feet.
S&E = science and engineering.

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E7-3. Total amount of science and engineering (S&E) research space in the 29 original* Historically Black Colleges and Universities (HBCUs) by field: 1988, 1990, 1992, 1994, 1996, and 1998

Field	Total NASF in S&E fields						Total research NASF in S&E fields					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
Number of research-performing HBCUs	29	29	29	28	29	29	29	29	29	28	29	29
	NASF in thousands											
Total	6,077	6,175	6,576	6,084	6,755	6,818	1,112	1,440	1,782	1,759	1,797	1,885
Biological sciences												
inside medical schools	621	388	388	456	470	513	91	121	121	159	150	181
outside medical schools	509	546	621	581	634	663	141	170	254	250	208	216
Physical sciences	804	810	1,005	876	939	841	179	190	235	212	229	234
Psychology	119	105	86	106	134	114	14	19	16	18	16	16
Social sciences	304	322	278	233	268	257	28	47	57	43	56	46
Mathematics	173	164	191	158	194	204	12	26	29	19	24	20
Computer sciences	150	114	160	128	140	159	43	30	42	31	36	40
Earth, atmospheric and ocean sciences	44	56	85	73	115	121	10	26	35	27	42	43
Engineering	777	979	1,207	1,136	1,354	1,385	152	167	285	315	349	363
Agricultural sciences	604	834	783	704	718	786	259	433	414	470	451	471
Medical sciences												
inside medical schools	1,253	810	810	649	872	903	141	158	160	69	84	87
outside medical schools	593	956	963	913	719	726	37	50	133	134	63	82
Other sciences	126	91	0	70	198	146	4	4	0	12	88	86

* The original group consists of 29 HBCUs also surveyed in 1986, 1988, 1990, 1992, 1994, and 1996.

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E7-4. Total amount of science and engineering (S&E) instructional and research space in Historically Black Colleges and Universities (HBCUs): 1992, 1994, 1996, and 1998

Field	Total NASF in S&E fields				Total research NASF in S&E fields			
	1992	1994	1996	1998	1992	1994	1996	1998
Number of research-performing HBCUs*	70	70	68	57	70	70	68	57
Total	9,095	7,923	8,984	8,734	2,920	2,197	2,374	2,339
Biological sciences								
inside medical schools	388	456	470	513	121	159	150	181
outside medical school	1,757	1,063	1,182	1,005	1,137	480	393	305
Physical sciences	1,380	1,344	1,482	1,212	275	280	352	321
Psychology	173	222	219	214	25	33	31	31
Social sciences	438	367	413	415	78	61	77	56
Mathematics	325	365	345	338	34	38	44	31
Computer sciences	283	278	356	383	53	52	64	65
Earth, atmospheric, and ocean sciences	131	97	219	214	64	36	54	57
Engineering	1,353	1,278	1,445	1,499	302	355	364	388
Agricultural sciences	930	705	979	1,081	497	483	595	635
Medical sciences								
inside medical schools	862	649	872	903	187	69	84	87
outside medical school	1,070	989	799	805	147	141	77	95
Other sciences	5	109	202	151	0	14	88	86

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E7-5. Institutional assessment of the condition of research facilities at Historically Black Colleges and Universities (HBCUs): 1988, 1990, 1992, 1994, 1996, and 1998

Condition of research facilities	Original 29 HBCUs[1]						Expanded HBCUs[2]			
	1988	1990	1992	1994	1996[3]	1998[4]	1992	1994	1996[3]	1998[4]
	Percentage of research space									
Total	100	100	100	100	100	100	100	100	100	100
Suitable for most highly developed and scientifically sophisticated research	36	31	34	31	32	36	22	24	31	35
Effective for most uses, but not most scientifically sophisticated research	39	45	41	39			56	35		
Effective for most levels of research in the field, but may need limited repair/renovation	18	18	17	21	56	47	14	25	55	48
Requires major repair/renovation to be used effectively[5]	7	7	8	9	13	17	8	16	14	16

[1] The original group consists of the 29 HBCUs also surveyed in 1986, 1988, 1990, 1992, 1994, and 1996.

[2] The expanded group consists of all research-performing HBCUs, including the 29 original HBCUs.

[3] 1996 survey response categories changed to: suitable for the most scientifically competitive research; effective for most levels of research in the field, but may need limited repair/renovation; and requires major renovation or replacement to be used effectively.

[4] 1998 survey response categories changed to: suitable for the most scientifically competitive research; effective for most levels of research in the field, but may need limited repair/renovation; requires major renovation to be used effectively; and requires replacement.

[5] Includes category "requires replacement" for the survey years 1992, 1994, and 1998.

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E7-6. Science and engineering research facility construction and repair/renovation projects at Historically Black Colleges and Universities (HBCUs), by project characteristics: 1986 99

Capital project activity	Original[1]							Expanded[2]				
	1986 87	1988 89	1990 91	1992 93	1994 95	1996 97	(scheduled) 1998 99	1990 91	1992 93	1994 95	1996 97	(scheduled) 1998 99
Construction projects:[3]												
Number of HBCUs with projects	11	10	6	4	4	10	6	10	9	13	14	10
Total estimated completion cost (in millions of dollars)	72	55	23	9	3	64	35	38	29	21	66	64
Amount of space (NASF in thousands)	481	319	328	88	68	335	165	449	226	166	347	252
Repair/renovation projects costing $100,000:[3]												
Number of HBCUs with projects	13	10	5	11	7	5	9	8	12	9	15	13
Total estimated completion cost (in millions of dollars)	14	17	12	9	22	8	16	21	9	22	13	18
Amount of space (NASF in thousands)	137	308	129	106	343	114	262	177	110	347	150	280
Repair/renovation projects costing $5,000-$100,000:												
Number of HBCUs with projects	--	--	10	13	11	13	--	21	38	24	22	--
Total estimated completion cost (in millions of dollars)	--	--	1	3	1	1	--	1	26	2	2	--

[1] The original group consists of the 29 HBCUs also surveyed in 1986, 1988, 1990, 1992, 1994, and 1996.

[2] The expanded group consists of all research-performing HBCUs, including the 29 original HBCUs.

[3] Findings are limited to projects with estimated total cost at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only.

KEY: NASF = net assignable square feet.
-- = data were not collected.

NOTE: Components may not add to totals due to rounding. In 1996, two HBCUs did not have R&D expenditures. In 1998, seven HBCUs did not have R&D expenditures. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 7 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E7-7. Source of funds for science and engineering research facility construction projects at Historically Black Colleges and Universities (HBCUs): 1986 97

Source of funds	1986 87[1]	1998 89[1]	1990 91 [Original][2]	1990 91 [Expanded][3]	1992 93 [Original][2]	1992 93 [Expanded][3]	1994 95 [Original][2]	1994 95 [Expanded][3]	1996 97 [Original][2]	1996 97 [Expanded][3, 5]
Number of research-performing HBCUs	29	29	29	70	28	68[4]	29	68[4]	29	57
	In millions of dollars									
Total	71.8	55.1	22.5	37.6	8.6	28.8	3.3	21.3	64.3	66.2
Federal Government	32.7	35.0	12.1	13.0	6.5	4.6	1.3	3.3	4.6	4.8
State/local government	25.8	11.5	6.3	18.0	2.0	22.4	2.0	16.8	50.5	50.5
Private donations	11.1	7.7	0.0	0.0	0.0	0.0	0.0	0.3	3.0	3.4
Institutional funds	2.3	0.9	4.2	4.6	0.0	0.2	0.0	0.9	1.5	1.5
Debt financing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.7
Tax-exempt bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.6
Other debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Other sources	0.0	0.0	0.0	1.9	0.0	1.6	0.0	0.0	1.0	2.2

[1] Data for the first two time periods were heavily inflated by construction activity at a single institution, which accounted for a substantial fraction of the total dollar amount shown.

[2] The original group consists of the 29 HBCUs also surveyed in 1988, 1990, 1992, 1994, and 1996.

[3] The expanded group consists of all research-performing HBCUs, including the 29 original HBCUs.

[4] Two of the HBCUs were determined to be out of scope since they had no S&E research space; data are weighted to 28 in the original panel and 68 in the expanded group.

[5] Seven of the HBCUs were determined to be out of scope since they had no S&E research space; data are weighted to 29 in the original panel and 57 in the expanded group.

NOTE: Components may not add to totals due to rounding. Findings are limited to projects with estimated total cost at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 7 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E7-8. Sources of funds for science and engineering research facilities repair/renovation projects at Historically Black Colleges and Universities (HBCUs): 1986 97

Source of funds	1986 87	1988 89	1990 91 [Original][1]	1990 91 [Expanded][2]	1992 93 [Original][1]	1992 93 [Expanded][2]	1994 95 [Original][1]	1994 95 [Expanded][2]	1996 97 [Original][1]	1996 97 [Expanded][2,4]
Number of research-performing HBCUs	29	29	29	70	28	68[3]	29	68[3]	29	57
	In millions of dollars									
Total	14.1	21.1[5]	11.6	21.4	8.7	9.1	21.5	22.0	7.6	13.2
Federal Government	8.7	12.9	3.5	3.6	5.0	4.8	10.2	10.4	2.2	4.5
State/local government	4.9	8.0	8.0	17.7	2.1	2.1	6.4	6.6	1.8	2.5
Private donations	0.5	0.1	0.1	0.2	1.7	1.7	0.0	0.0	0.0	0.2
Institutional funds	0.0	0.1	0.1	0.1	0.1	0.4	2.6	2.6	3.6	6.0
Debt financing	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	0.0	0.0
Tax-exempt bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other debt	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	0.0	0.0
Other sources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

[1] The original group consists of the 29 HBCUs also surveyed in 1986, 1988, 1990, 1992, 1994, and 1996.

[2] The expanded group consists of all research-performing HBCUs, including the 29 original HBCUs.

[3] Two of the HBCUs were determined to be out of scope since they had no S&E research space; data are weighted to 28 in the original panel and 68 in the expanded group.

[4] Seven of the HBCUs were determined to be out of scope since they had no S&E research space; data are weighted to 28 in the original panel and 57 in the expanded group.

[5] The 1988 89 total has been revised since the 1996 report.

NOTE: Components may not add to totals due to rounding. Findings are limited to projects with estimated total cost at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only. Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in chapter 7 of this report.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E7-9. Laboratory animal facilities at Historically Black Colleges and Universities (HBCUs): 1998

Indicator	Original group[1]	Expanded group[2]
Total animal research space (NASF in thousands)	229,622	245,268
Animal laboratory space (NASF in thousands)	90,773	96,961
Animal housing space (NASF in thousands)	138,849	148,307
Regulation status (percentage of animal research space):[3]		
Level 1	0.9	0.9
Level 2	6.8	8.8
Level 3	1.7	2.2
Level 4	0.0	0.0
Cost of scheduled construction and repair/ renovation of laboratory animal facilities, FYs 1996 or 1997 (in thousands of dollars)	517,858	517,858
Amount of space scheduled for construction and repair/renovation of laboratory animal facilities, FYs 1996 or 1997 (NASF in thousands)	10,358	10,358

[1] The original group consists of the HBCUs also surveyed in 1986, 1988, 1990, 1992, 1994, and 1996.

[2] The expanded group consists of all research-performing HBCUs, including the 29 original HBCUs.

[3] Definitions of levels are as follows:

Level 1 practices, safety equipment, and facilities are appropriate for undergraduate and secondary educational training and teaching laboratories, and for other facilities in which work is done with defined and characterized strains of viable microorganisms not known to cause disease in healthy adult humans.

Level 2 practices, equipment, and facilities are applicable to clinical, diagnostic, teaching and other facilities in which work is done with the broad spectrum of indigenous moderate-risk agents present in the community and associated with human disease of varying severity.

Level 3 practices, safety equipment, and facilities are applicable to clinical, diagnostic, teaching, research, or production facilities in which work is done with indigenous or exotic agents with a potential for respiratory transmission, and which may cause serious and potentially lethal infection.

Level 4 practices, safety equipment, and facilities are applicable for work with dangerous and exotic agents which pose a high individual risk of life-threatening disease, which may be transmitted via the aerosol route, and for which there is no available vaccine or therapy.

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E8-1. Amount of space in laboratory animal facilities by institution type and control: 1998

Institution type and control	Number of institutions	Total animal research space	Animal housing space	Animal laboratory space
		NASF in thousands		
Total	542	11,852	8,551	3,301
Doctorate-granting	323	11,235	8,115	3,120
Top 100 in research expenditures	97	8,491	6,094	2,397
Other	226	2,744	2,021	723
Nondoctorate-granting	219	617	436	181
Public	302	9,139	6,630	2,509
Doctorate-granting	193	8,721	6,300	2,421
Nondoctorate-granting	109	418	330	88
Private	240	2,713	1,921	792
Doctorate-granting	130	2,514	1,815	699
Nondoctorate-granting	110	199	106	93

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding. Limited to institutions reporting any animal research space that is subject to government regulations concerning the humane care and use of laboratory animals.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E8-2. Percentage of animal research space at each animal biological safety level by institution type and control: 1998

Institution type and control	Total	Animal biological safety level			
		Level 1[1]	Level 2[2]	Level 3[3]	Level 4[4]
Total	100	75	23	3	0
Doctorate-granting	100	74	24	3	0
Top 100 in research expenditures	100	72	25	3	0
Other	100	80	18	2	0
Nondoctorate-granting	100	93	7	0	0
Public	100	76	22	2	0
Doctorate-granting	100	76	22	2	0
Nondoctorate-granting	100	94	6	1	0
Private	100	69	27	4	0
Doctorate-granting	100	67	28	5	0
Nondoctorate-granting	100	91	9	0	0

[1] Acceptable for work with microorganisms not known to cause disease in healthy humans.

[2] Acceptable for work with moderate-risk agents present in the community and associated with human disease of varying severity.

[3] Acceptable for work with indigenous or exotic agents with a potential for respiratory transmission, and which may cause serious and potentially lethal infection.

[4] Acceptable for work with biological agents that may cause the transmission of a potentially lethal disease for which there is no readily available cure.

NOTE: Components may not add to totals due to rounding. Limited to institutions reporting any animal research space that is subject to government regulations concerning the humane care and use of laboratory animals.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E8-3. Amount of animal research space and funds scheduled for the construction and repair/renovation of laboratory animal facility improvement by institution type and control: 1998

Institution type and control	Construction			Repair/Renovation		
	Number of institutions	NASF [in thousands]	Cost [in millions of dollars]	Number of institutions	NASF [in thousands]	Cost [in millions of dollars]
Total	56	303	45.1	35	492	162.1
Doctorate-granting	50	292	43.2	30	440	143.5
Top 100 in research expenditures	34	193	34.9	21	329	119.1
Other	16	99	8.3	9	112	24.3
Nondoctorate-granting	6	12	1.9	5	52	18.6
Public*	27	154	20.1	25	340	99.8
Private	29	149	25.0	10	151	62.3
Doctorate-granting	24	143	23.7	7	117	45.3
Nondoctorate-granting	5	6	1.3	3	34	17.0

*The data for the public doctorate and nondoctorate-granting institutions have been combined due to confidentiality pledge.

KEY: NASF = net assignable square feet.

NOTE: Components may not add to totals due to rounding. Limited to institutions reporting any animal research space that is subject to government regulations concerning the humane care and use of laboratory animals.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E9-1. Total assigned instructional and research space at biomedical institutions by field and institution type: 1988 98

Field	Total assigned instructional and research space						Total assigned research space					
	1988	1990	1992	1994	1996	1998	1988	1990	1992	1994	1996	1998
	NASF in millions											
Biological sciences	45	49	52	52	52	60	24	26	28	28	29	39
CI						(57.04 63.25)						(36.20 41.61)
CV						3						4
Universities and colleges	32[T]	34	33[T]	35	36	35	16[T]	18	17[T]	17[T]	19	19
CI						(33.44-36.69)						(18.49 20.36)
CV						2						3
Medical schools	13[T]	15	19	17	16	17	8[T]	9[T]	11	11	11	12
CI						(15.12 19.12)						(10.34 12.9)
CV						6						6
Research organizations	--	--	--	--	--	7	--	--	--	--	--	6
CI						(4.28 8.64)						(4.21 8.53)
CV						17						17
Hospitals	--	--	--	--	--	2	--	--	--	--	--	2
CI						(0.50 2.50)						(0.47 2.46)
CV						34						33
Medical sciences	66	63	70	60	59	69	19	20	22	23	25	34
CI						(62.78 75.90)						(29.88 38.99)
CV						5						7
Universities and colleges	21	22	25	22	23	22	5[T]	5[T]	6[T]	6[T]	7	7
CI						(19.96 24.67)						(6.53 7.47)
CV						5						3
Medical schools	45[T]	41[T]	46[T]	38	36	36	14[T]	15[T]	16	17	18	18
CI						(31.84 40.06)						(16.19 20.06)
CV						6						5
Research organizations	--	--	--	--	--	3	--	--	--	--	--	3
CI						(1.66 4.74)						(1.64 4.72)
CV						25						25
Hospitals	--	--	--	--	--	8	--	--	--	--	--	6
CI						(3.53 11.98)						(2.23 9.82)
CV						27						32

KEY: T = Significant differences between this time period and 1996 (outside 1996 CI).
-- = data not available.
NASF = net assignable square feet.
S&E = science and engineering.
CI = Confidence interval.
CV = Coefficient of variation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E9-2. Condition of biomedical research space by institution type: 1998

Institution type	Suitable for the most scientifically competitive research in the field	Effective for most levels of research	Requires major renovation	Requires replacement
	Percentage of research NASF			
All biomedical research institutions	0	0	0	0
CI	(42.3 48.4)	(30.7 35.0)	(16.2 18.5)	(3.8 5.0)
CV	0	0	0	0
Colleges and universities, total	38	38	20	5
CI	(35.8 39.3)	(35.9 39.0)	(19.0 20.9)	(4.5 5.6)
CV	2	2	3	6
Top 50 in research expenditures	40	34	22	5
CI	(38.7 40.4)	(32.9 34.2)	(21.6 22.6)	(4.5 5.1)
CV	5	1	1	4
Other doctorate-granting	34	43	18	5
CI	(30.9 37.8)	(39.6 46.1)	(15.9 19.7)	(4.0 6.0)
CV	1	4	6	10
Nondoctorate-granting	43	32	18	7
CI	(31.2 54.7)	(23.2 39.8)	(12.7 24.0)	(2.7 11.7)
CV	14	13	16	32
Medical schools	46	33	18	4
CI	(41.9 49.2)	(29.2 36.1)	(16.0 19.2)	(3.5 4.9)
CV	4	6	5	7
Research organizations	67	19	11	3
CI	(57.0 76.2)	(12.6 25.8)	(6.6 16.0)	(0 6.2)
CV	7	17	21	59
Hospitals	46	35	15	5
CI	(27.8 64.2)	(24.3 45.3)	(8.4 20.6)	(1.8 7.7)
CV	20	15	21	31

KEY: NASF = net assignable square feet.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E9-3. Number of institutions and funds committed to nonfixed equipment costing over $1 million in repair/renovation projects by biomedical field: 1996 97

Field	Number of institutions with expenditures on nonfixed equipment	Expenditures on nonfixed equipment [in millions of dollars]	Total construction expenditures [in millions of dollars]	Nonfixed equipment expenditures as a percentage of total construction expenditures
All Biomedical Institutions	7	24.4	73.3	33.3
Biological sciences	4	16.1	38.9	41.3
Medical sciences	5	8.3	34.4	24.2

NOTE: Components may not add to totals due to rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table E9-4. Number of institutions with scheduled construction or repair/renovation projects for laboratory animal facilities by institution type and control: 1998

Institution type	Institutions with projects scheduled for 1998		Total cost	
	Number	Percentage of institutions with facilities*	Dollars [in millions]	Percentage of total cost
Total	137	20	573	100
CI		(14.0–25.1)	(304–758)	
CV		14	22	
Colleges, universities, and medical schools	74	14	207.2	36
CI		(11.1–17.2)	(166–249)	
CV		11	10	
Public	42	15	119.8	21
CI		(10.9–18.2)	(90.6–149)	
CV		13	13	
Private	32	14	87.4	15
CI		(8.5–18.8)	(57.9–117)	
CV		19	17	
Research organizations	48	48	149.9	26
CI		(18.1–77.5)	(25.2–275)	
CV		32	42	
Hospitals	15	19	174.1	30
CI		(5.2–33.1)	(0–360)	
CV		37	54.0	

* The number of institutions with animal research facilities is drawn from table 9-9.

NOTES: Components may not add to totals due to rounding. The data refer to institutions reporting any space in laboratory animal facilities that are subject to government regulations concerning the humane care and use of laboratory animals. Figures include all animal facilities in institutions with biomedical research space, regardless of field.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.